

1 **WHAT IS CLAIMED IS:**

- 2 1. A method for bonding flat glasses comprising the steps of:
 - 3 obtaining flat glasses having bonding surfaces with a surface precision
 - 4 degree less than $1/2\lambda(\lambda=632.8\text{nm.})$;
 - 5 cleaning the bonding surfaces of the flat glasses;
 - 6 placing the flat glasses in a clamp;
 - 7 tightening the clamp until the flat glasses are combined with each other
 - 8 to achieve an optical lens assembly; and
 - 9 separating the optical lens assembly from the clamp.
- 10 2. The method for bonding flat glasses as claimed in claim 1, wherein the
- 11 cleaning step uses an ultrasonic solution to clean the flat glasses, and then uses a
- 12 volatile solvent to clean and dry the flat glasses.
- 13 3. The method for bonding flat glasses as claimed in claim 1 further
- 14 comprising a step of examining the flat glasses with an interferometer to check
- 15 whether contaminants left on the bonding surfaces after the cleaning step.
- 16 4. The method for bonding flat glasses as claimed in claim 1 further
- 17 comprising a step of heating the clamp to decrease time for combining the flat
- 18 glasses when the clamp is tightened.
- 19 5. The method for bonding flat glasses as claimed in claim 3 further
- 20 comprising a step of blowing dust off the bonding surfaces with an airbrush after
- 21 the step of examining the flat glasses.
- 22 6. The method for bonding flat glasses as claimed in claim 4, wherein the
- 23 clamp is preferably heated to a temperature between 100°C and 250°C .
- 24 7. A method for bonding flat glasses comprising the steps of:

1 obtaining flat glasses having bonding surfaces with surface precision
2 degree less than $1/2\lambda$ ($\lambda=632.8\text{nm}$);
3 cleaning the bonding surfaces of the flat glasses in an ultrasonic solution
4 and a volatile solvent;
5 examining the flat glasses with an interferometer to check surface
6 precision of the flat glasses and to ensure that no contaminant is on the bonding
7 surfaces;
8 placing the flat glasses in a clamp;
9 tightening the clamp until the flat glasses are combined with each other
10 to achieve an optical lens assembly; and
11 separating the optical lens assembly from the clamp.

12 8. The method for bonding flat glasses as claimed in claim 7 further
13 comprising a step of heating the clamp to accelerate combination of the flat
14 glasses after the act of tightening the clamp.

15 9. The method for bonding flat glasses as claimed in claim 7 further
16 comprising a step of removing dust from the bonding surfaces with an airbrush
17 after the act of examining the flat glasses.

18 10. The method for bonding flat glasses as claimed in claim 8, wherein
19 the clamp is preferably heated to a temperature between 100°C and 250°C .

20 11. A method for bonding flat glasses comprising the steps of:
21 obtaining flat glasses having bonding surfaces with surface precision
22 degree less than $1/2\lambda$;
23 cleaning the bonding surfaces of the flat glasses in an ultrasonic solution
24 and a volatile solvent;

1 examining the flat glasses with an interferometer to check surface
2 precision of the flat glasses and ensure no contaminant is on the bonding
3 surfaces;

4 placing the flat glasses in a clamp;

5 tightening the clamp until the flat glasses are combined with each other
6 to achieve an optical lens assembly;

7 heating the clamp to a temperature between 100°C and 250°C to
8 decrease time for combining the flat glasses; and

9 separating the optical lens assembly from the clamping apparatus.

10 12. The method for bonding flat glasses as claimed in claim 11 further
11 comprising a step of removing dust from the bonding surfaces with an airbrush
12 after the step of examining the flat glasses.

13 13. A clamp used in the method for bonding flat glasses as claimed in
14 claim 1, 7, or 11, the clamp comprising:
15 a first pressure plate (12) with a recess (122) to hold the flat glasses and
16 having multiple threaded holes;
17 a second pressure plates (14) having multiple through holes; and
18 multiple bolts (16) passing respectively through the through holes in the
19 second pressure plate (14) and screwing into the threaded holes in the first
20 pressure plate (12) to tightly compress the flat glasses to combine the flat glasses
21 into a single lens assembly.